SS2000 Software Configuration Manual

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1 Safety Message to Users of this Software

People's lives depend on your safe installation and usage of our products. It is important to read, understand and follow all instructions shipped with the products. In addition, listed below are some other important safety instructions and precautions you should follow:

- The SS2000 Configurator is very powerful, allowing users to alter vehicle configurations and functionality very easily. It is important to carefully read the SS2000 Configurator Manual before proceeding with any attempt to use this software.

- Testing of newly installed vehicle configurations should not be performed while driving the vehicle. Until it is clear that all systems are working correctly, operating the siren may pose a hazard to the operator and other drivers if the installed systems do not function as expected. Test the vehicle in a controlled environment.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you and others.

...

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2 Vehicle Operation

2.1 Installing the SS2000 Configurator Program

This chapter outlines the procedure for installing the SS2000 Configurator operator software on your PC. If you have already installed the software, proceed to the next section Vehicle Operation using SS2000 Configurator.

Before You Begin:

You will need a copy of the SS2000 Configuration CD from which to load the application.

The SS2000 Configuration operator application is supported on PC's meeting the following minimum requirements:

- The table below shows memory requirements for the various versions of Microsoft Windows™ systems. These are based on Microsoft's minimum recommendations - in some cases more memory is recommended for effective operation of the SS2000 Configuration software.

Supported Operating System	Minimum Memory requirements (MB)
Windows 98™	64 (128 recommended)
Windows ME™	64 (128 recommended)
Windows NT™ 4.x	128
Windows 2000™	128
Windows XP™	128

- Required disk space for installation of the application is estimated at 15 MB.
- Systems should have a minimum of a 450 MHz Pentium processor.

Installing the Software:

Follow these steps to install SS2000 Configuration software on your PC:

1. Insert the SS2000 Configuration software CD into your CD-ROM drive.
2. The SS2000 Configuration software CD will automatically* launch the installation screen.

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SS2000 Configurator
Welcome to the SS2000 Configurator Setup Wizard
The installer will guide you through the steps required to install SS2000 Configurator on your computer.
Click "Next" to continue.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
Previous
Next

3. Click the next button on the screen and follow the instructions that will step you through the rest of the installation process.

***Note:** If autorun is disabled, or if autorun fails to initiate, browse your computer's hard drive by double-clicking on *My Computer* icon and browsing the CD ROM drive. Double-click on *setup.exe* to install the SS2000 Configuration software.

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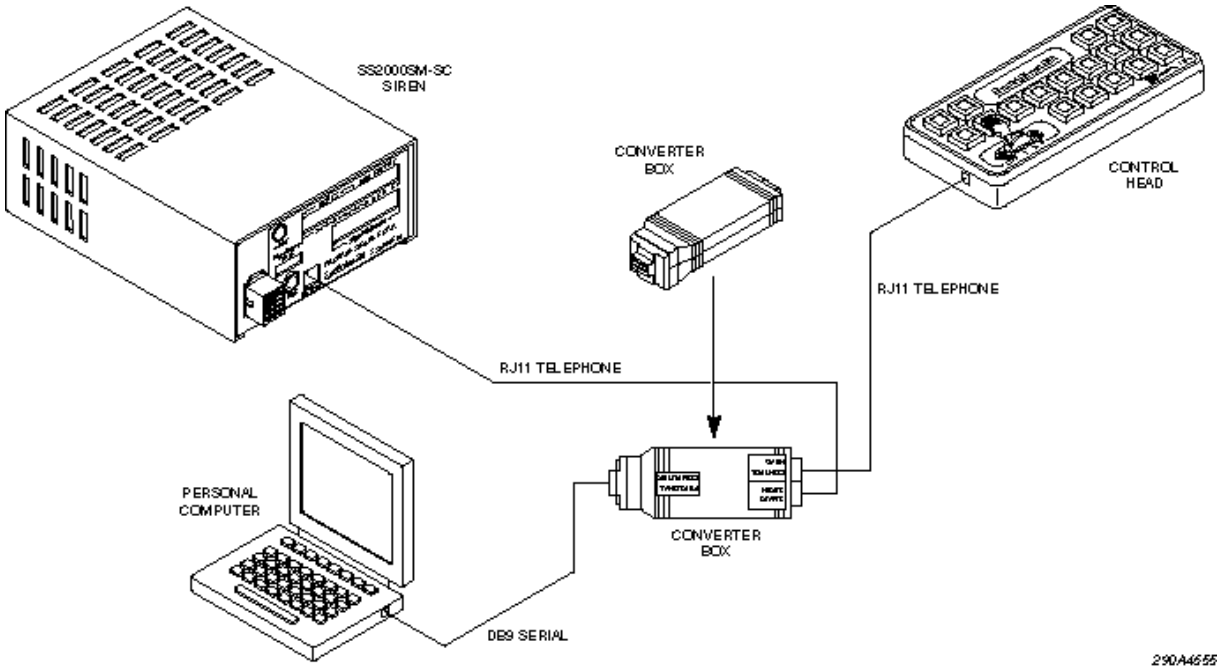
2.2 Vehicle Operation using SS2000 Configurator

Before You Begin:

- A SS2000 Configuration software must be installed on the vehicle's computer.

Connecting the SS2000 TouchScreen Converter Box:

- The connection from the computer to the SS2000 TouchScreen Converter box has to be established. Provided in the Installation is a Serial cable that will provide the connection needed for communication to the SS2000 TouchScreen system. Connect the 9-pin serial connector to the serial port on the back of your computer to the 9-pin serial connector on the Converter box. With the kit supplied RJ11 telephone cable, connect the Control Head to the other RJ11 connector on the Converter box labeled Controlled Head. (See Below for connection)



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Running the SS2000 TouchScreen Interface Software:

After the serial connection has been established, start the SS2000 TouchScreen Interface software by double clicking on the desktop icon. When the software starts you will see the screen below which is the interface configuration for the software.

Communication Port:

The communication port is the first thing needs to be established before any programming can be done.

Setting Communication Port:
To set the communication port the user must do the following steps:

1. Select *Control* from the menu bar, then select, *Select Communication Port*.

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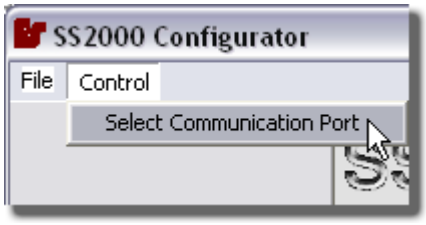
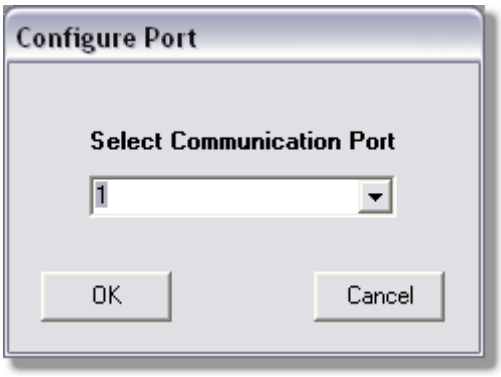


2. Selecting, *Select Communication Port* will open the Configure Port dialog box.



3. Pick the correct communication port number and then select the *OK* button. Look at the communication message boxes to determine if the communinication as been established.

The communication message boxes are located at the bottom left corner of the screen.

The first message box provides one of three messages:

1. Set Communication port
   (current communication port is invalid, please select another)
2. Status: Not Connected
   (communication has been established, siren is not in programming mode)
3. Status: Programming Mode - Connected
   (siren in programming mode)

The second message box provides one of three messages:

1. Connected to Com Port #
   (comport is valid on computer, but system off or incorrectly connected)
2. Communication Port Is Active
   (communication has been established)
3. Communication Offline
   (lost communication connection)

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2.3 Configuring the SS2000 TouchScreen Interface

SS2000 - LMS Features:

- Combined load management/electronic siren and light control.
- Programmable load shedding at the point of installation.
- High Idle control capability.
- Two selectable sets of voltage thresholds for load manager.
- Audible indication and flashing LED for low battery alarm.

Standard SS2000SM Functions:

- Sirens can be configured to operate independent of switches.
- Program mode can be disabled to prevent unauthorized reprogramming.
- Each slide switch position can be configured to operate any combination of all eight relays plus Key 11, Horn Ring Transfer, Siren Enable, and any of the four warn patterns.
- Each Aux Relay can be configured as Push On/Push Off, Momentary, Eight Second Timeout, or Security Timeout.
- Any key on the siren row, except STBY, can be permanently disabled or enabled.
- Key 11 (PA) can be configured to activate the Horn Ring Transfer Relay or an external relay such as the Common Mic Relay.
- You can now select any keys, except MAN & AH and the SignalMaster keys to turn on automatically when the system is powered up
- Your Horn Ring transfer tone can be YELP or PRIORITY.
- You can select Peak & Hold or Air Horn to activate with the horn ring.
- Relays sequence on and off to minimize power surges.
- SignalMaster Controller can operate SIX or EIGHT lamp SignalMaster models.
- 34 different SignalMaster Patterns Available.
- Programmable "Function Indicator Sound" notifies you if you have any functions active.
- Park - Siren Deactivator deactivates siren when vehicle is put in PARK.
- The SS2000SM system is an extremely versatile system. Because of this versatility, it is very important to know how you want the system to function before you begin configuration. Therefore, be sure to read the directions before you begin configuration so that you may understand the capabilities of the SS2000SM system.
- To help in determining how your system will function, a worksheet outlining all the capabilities of the system is included at the back of this manual. Use this worksheet to determine exactly how your system should function, then begin the reconfiguring process. You will find that filling out the worksheet will help greatly reduce the time needed to configure your system to meet your requirements.
- Once you have determined how your system should operate, use this manual to guide you through the configuration process.
- An overview of the different levels of configuration, and similar functions are grouped together. Notice that level two is broken down into specific functional areas separated by arrows. These arrows represent a change into a "deeper" layer of level 2.

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- These deeper layers are only accessible from the previous layer. There is only one way into each layer and only one way out.
- Example: If you want to change the functionality of Slide Switch position 3, you must follow the "flow" of the arrows.

    1. Select Level 2 from the MAIN MENU .
    2. Select "Slide Switches" to drop into the Slide switch layer.
    3. Select Slide Switch position 3 to drop into the "Slide Functions" layer.
    4. Make your changes for Slide Switch 3 in the Slide Functions layer.

- *You have just completed "one way in." You must now come out the same way by use of the SAVE key.

    5. Press SAVE. This will bring you back up to "Slide Switches."
    6. Press SAVE again to bring yourself back up to Level 2.
    7. Press SAVE again to bring yourself back up to the MAIN MENU.

- This is the extreme case as you will notice not all levels have sub-layers. Be aware that if you also wanted to reconfigure Slide Switch 2, you could have selected Slide Switch 2 in step 6 above without going all the way back to the MAIN MENU. This will reduce the number of key hits needed to configure your system.

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2.4 Operation Safety

Operation

SAFETY MESSAGE TO OPERATORS OF FEDERAL SIGNAL ELECTRONIC SIRENS AND LIGHT/SOUND SYSTEMS

WARNING

- The lives of people depend on your safe operation of Federal products. It is important to read and follow all instructions shipped with the products. In addition, listed below are some other important safety instructions and precautions you should follow:

Qualifications

- To properly use an electronic siren and speaker(s): you must have a good understanding of general vehicle operation, a high proficiency in the use of safety warning equipment, and thorough knowledge of state and federal UNIFORM TRAFFIC CODES.

Sound Hazards

- Your hearing and the hearing of others, in or close to your emergency vehicle, could be damaged by loud sounds. This can occur from short exposures to very loud sounds, or from longer exposures to moderately loud sounds. For hearing conservation guidance, refer to federal, state, or local recommendations. OSHA Standard 1910.95 offers guidance on "Permissible Noise Exposure."

- All effective sirens and horns produce loud sounds which may, in certain situations, cause permanent hearing loss. You should minimize your exposure times and wear suitable hearing protection.

Sound Limitations

- Maximum sound output will be severely reduced if any objects are in front of the speaker. If your installation has obstructions in front of the speaker, drive even more cautiously.

- Frequently inspect the speaker to ensure that it is clear of any obstruction, such as mud or snow, which will reduce maximum sound output.

Signaling Limitations

- Be aware that the use of your visual and audible signaling devices does not give you the right to force your way through traffic. Your emergency lights, siren, and actions are REQUESTING the right-of-way.

- Although your warning system is operating properly, it may not alert everyone. People may not hear, see, or heed your warning signal. You must recognize this fact and continue driving cautiously.

- Situations may occur which obstruct your warning signal when natural or man-made objects are between your vehicle and others, such as when you raise your hood or trunk lid. If these situations occur, be especially careful.

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Driving Limitations

- At the start of your shift, you should ensure that the light/sound system is securely attached to the vehicle and operating properly.
- If the unique combination of emergency vehicle equipment installed in your vehicle has resulted in the siren controls being installed in a position that does not allow you to operate them by touch only, OPERATE CONTROLS ONLY WHILE YOUR VEHICLE IS STOPPED.
- If driving conditions require your full attention, you should avoid operating the siren controls while the vehicle is in motion.

Continuing Education

- File these instructions in a safe place and refer to them periodically. Give a copy of these instructions to new recruits and trainees.
- Failure to follow these safety precautions may result in property damage, serious injury, or death to you, to passengers, or to others.

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3 Programming SS2000

3.1 Main Level

Configuration Mode

To enter configuration mode, simply execute the following steps:

1. Select the correct communication port.

2. Communication message box 2 reads "Communication Port Is Active".

3. Press the Connect Button.

The Connect button will turn to Disconnect, the communication message box will read "Status: Programming Mode - Connected", and the buttons Level 1, Level 2, Level 3, Level 4, and Level 5 will be enabled.

At this point you have six choices:

Connect/Disconnect
LEVEL 1

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LEVEL 2
LEVEL 3
LEVEL 4
LEVEL 5 (LMS Version Only)

LEVEL 1

Pressing "LEVEL 1" will enter LEVEL 1 (Keyboard). Click on Link.

LEVEL 2

Pressing "LEVEL 2" will enter LEVEL 2 (Keys). Click on Link.

LEVEL 3

Pressing "LEVEL 3" will enter LEVEL 3 (Power Up). Click on Link.

LEVEL 4

Pressing "LEVEL 4" will enter LEVEL 4 (Horn Ring). Click on Link.

LEVEL 5

Pressing "LEVEL 5" will enter LEVEL 5 (Load Management). Click on Link.

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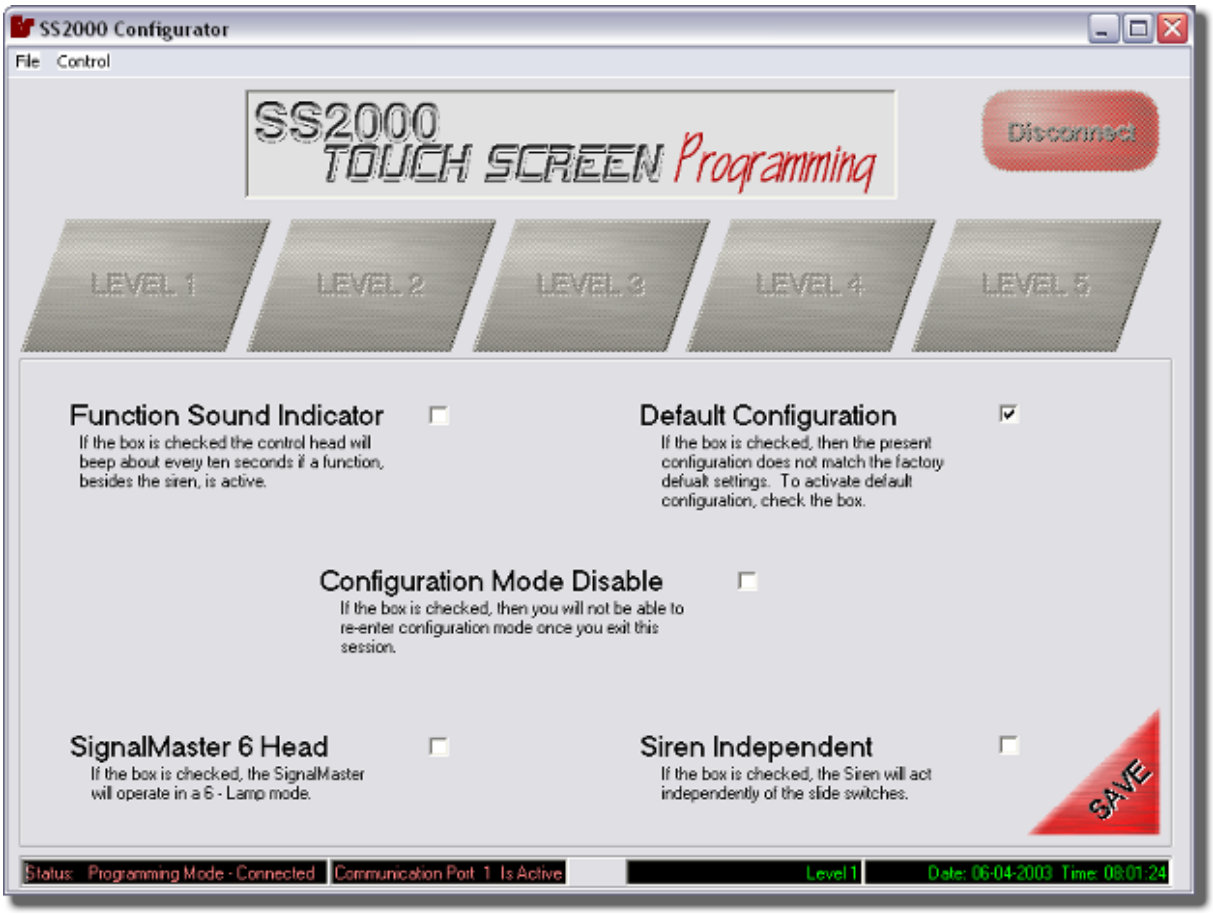
3.2 SS2000 Program Level 1


SS2000 Configurator
File Control
SS2000 TOUCH SCREEN Programming
Disconnect
LEVEL 1
LEVEL 2
LEVEL 3
LEVEL 4
LEVEL 5
Function Sound Indicator
If the box is checked the control head will beep about every ten seconds if a function, besides the siren, is active.
Default Configuration
If the box is checked, then the present configuration does not match the factory default settings. To activate default configuration, check the box.
Configuration Mode Disable
If the box is checked, then you will not be able to re-enter configuration mode once you exit this session.
SignalMaster 6 Head
If the box is checked, the SignalMaster will operate in a 6 - Lamp mode.
Siren Independent
If the box is checked, the Siren will act independently of the slide switches.
SAVE
Status: Programming Mode - Connected
Communication Port 1 Is Active
Level 1
Date: 06-04-2003 Time: 08:01:24

LEVEL 1 (Keyboard) is where options are chosen that affect the entire keyboard. These options are whether you want the siren keys to act independently of the rest of the keyboard, whether you want the default, factory settings, configuration, or whether you want configuration mode disabled after this configuration session.

SAVE

Saves displayed LEVEL 1 settings and returns to MAIN MENU.

Function Indicator Sound

If the Function Indicator Sound checkbox is checked, the control head will beep about every ten seconds if a function, besides the sirens, is active.

SignalMaster 6

If the SignalMaster 6 Head checkbox is checked, then the SignalMaster will operate in the 6-Lamp mode.

If the SignalMaster 6 Head checkbox is NOT checked, then the SignalMaster will operate in the 8-

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Lamp mode.

Sirens Independent

If the Sirens Independent checkbox is checked, then the sirens will act independently of the slide switches. That is, in operation mode, if a siren key is pressed, the siren tone will be produced immediately.

If the Sirens Independent checkbox is NOT checked, the sirens, in operation mode, will require that one of the slide switches be activated before the siren tone will be produced. Which slide switch will turn on the sirens is optional and will be discussed in Level 2 - Slide Switch - Function.

Default Configuration

If the Default Configuration checkbox is checked, then the keyboard is configured according to the factory default settings.

If the Default Configuration checkbox is not checked, then the present configuration does not match the factory default settings.

To put the system back in factory default configuration, check the Default Configuration checkbox. Remember, this will erase all previous configuration information.

Configuration Mode Disable

If turned on, you will not be able to re-enter configuration mode once you exit this session. To re-enter configuration mode at a later date, the "Push To Talk" button on the microphone for the siren system must be on while the *Connect* button is pressed to enter configuration mode. The Push to Talk button must be held until you re-enter level 1 and uncheck the Configuration Mode Disable checkbox. Once this is accomplished you can release the Push to Talk button on the microphone and proceed with reconfiguration as normal.

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3.3 SS2000 Program Level 2 (Main Level 2)

SS2000 Configurator
File Control
SS2000 TOUCH SCREEN Programming
Disconnect
LEVEL 1
LEVEL 2
LEVEL 3
LEVEL 4
LEVEL 5
Slide Switch
Aux. Relay Keys
Siren Disable
Key 11 Pursuit
Level 2 is used to specifically configure each key or switch. Level 2 allows you to change how each Slide Switch, Auxixliary Relay Key, Siren Key and 11/ Pursuit Switch functions.
SAVE
Status: Programming Mode - Connected
Communication Port 1 Is Active
Level 2
Date: 06-04-2003 Time: 10:08:06

Level 2 (Keys) is used to specifically configure each key or switch. Level 2 allows you to change how each Slide Switch, Auxiliary Relay Key, Siren Key, and Key 11/Pursuit Switch functions.

SAVE

Saves LEVEL 2 settings and returns to MAIN MENU.

Slide Switches

Pressing "Slide Switches" will enter LEVEL 2 - Slide Switches. If Slide Switches is selected, see Level 2 - Slide Switches.

Aux Relay Keys

Pressing "Aux Relay Keys" will enter LEVEL 2 - Aux Relay Keys. If Aux Relay Keys is selected, see Level 2 - Aux Relay Keys.

Siren Disable

Pressing "Siren Disable" will enter LEVEL 2 - Siren Disable. If Siren Disable is selected, see Level 2 - Siren Disable.

Key 11

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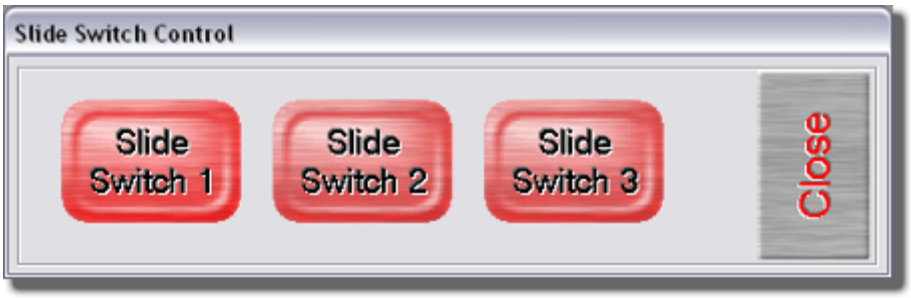
Pressing "Key 11 & Pursuit" will enter LEVEL 2 - Key 11 & Remote. If Key 11 is selected, see Level 2 - Key 11 & Pursuit.

3.3.1 SS2000 Program Level 2 Slide Switch Control



Level 2 Slide Switches determines which Slide Switch position to reconfigure.

SAVE

Saves LEVEL 2 - Slide Switch settings and returns to LEVEL 2.

Slide 1

Press "Slide 1" to reconfigure how Slide Switch, position 1, functions. If Slide 1 is selected, go to Level 2 - Slide Switch.

Slide 2

Press "Slide 2" to reconfigure how Slide Switch, position 2, functions. If Slide 2 is selected, go to Level 2 - Slide Switch.

Slide 3

Press "Slide 3" to reconfigure how Slide Switch, position 3, functions. If Slide 3 is selected, go to Level 2 - Slide Switch.

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3.3.1.1 SS2000 Program Level 2 Slide Switch Function

Level 2 - Slide Switch - Function, is where the slide switch position just selected is configured. All relays can be configured to activate on with the switch as well as Horn Ring Transfer and Siren Enable.

SAVE

Pressing the SAVE key will save what is displayed and you will return to Level 2 - Slide Switches.

Aux Relay

Any combination of Auxiliary relays can be configured to activate with the Slide Switch position being reconfigured. Simply turn on (or turn off) the desired Aux Relay Keys as labeled above.

Relays 1, 2, & 3

Any combination of Relays 1, 2, and/or 3 can be configured to activate with the Slide Switch position being reconfigured. Simply turn on (or turn off) the desired Relay Keys as labeled above.

Horn Ring Transfer

The Horn Ring Transfer can be configured to automatically turn on with the Slide Switches. To do so, turn on Horn Ring Transfer.

Siren Enable

If sirens are configured to be dependent on the slide switch, this is where you will enable the siren. If you want the siren to be enabled for the slide switch position you are configuring, just turn on the Siren Enable button.

SignalMaster Warn 1-4

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If a SignalMaster Warning Pattern is desired to activate with the slide switch being programmed, just turn on the appropriate key for the warning pattern you need. If no warning pattern is needed, turn off all SignalMaster Warn buttons.

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3.3.2 SS2000 Program Level 2 Auxiliary Relay

Level 2 - Aux Relay Keys determines which Aux Relay Key to reconfigure.

SAVE

Saves LEVEL 2 - Aux Relay Key settings and returns to LEVEL 2.

Aux Relay A

Press "Aux Relay A" to reconfigure how Aux Relay A functions. If Aux Relay A is selected, go to Level 2 - Aux Relays - Function to reconfigure Aux Relay A.

Aux Relay B

Press "Aux Relay B" to reconfigure how Aux Relay B functions. If Aux Relay B is selected, go to Level 2 - Aux Relays - Function to reconfigure Aux Relay B.

Aux Relay C

Press "Aux Relay C" to reconfigure how Aux Relay C functions. If Aux Relay C is selected, go to Level 2 - Aux Relays - Function to reconfigure Aux Relay C.

Aux Relay D

Press "Aux Relay D" to reconfigure how Aux Relay D functions. If Aux Relay D is selected, go to Level 2 - Aux Relays - Function to reconfigure Aux Relay D.

Aux Relay E

Press "Aux Relay E" to reconfigure how Aux Relay E functions. If Aux Relay E is selected, go to Level 2 - Aux Relays - Function to reconfigure Aux Relay E.

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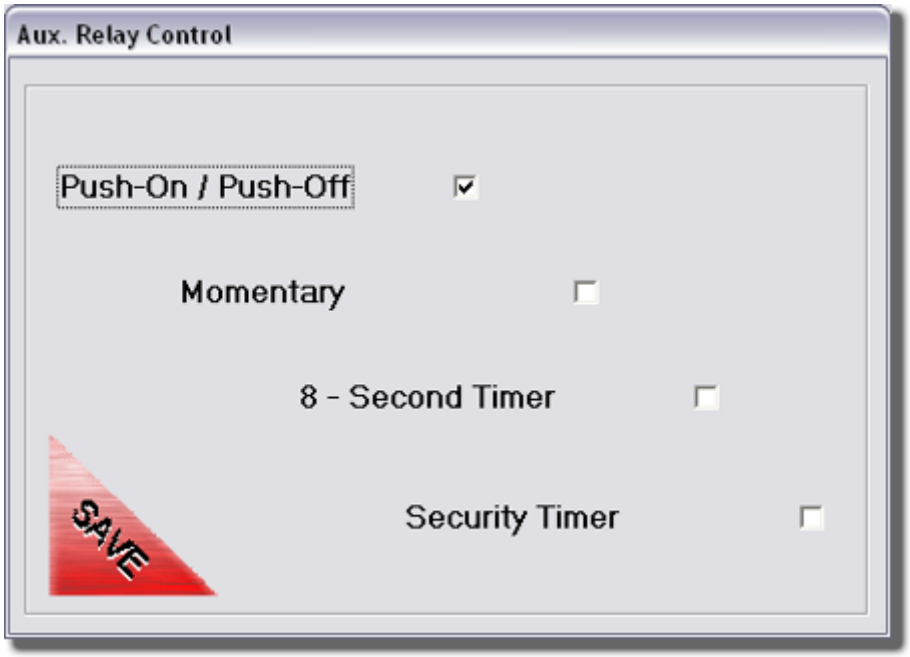
3.3.2.1 SS2000 Program Level 2 Auxiliary Function



Level 2 - Auxiliary Keys - Function is where you decide how the Auxiliary Relays are going to function.

SAVE

Saves LEVEL 2 - Aux Relays - Function key settings and returns to LEVEL 2 - Aux Relays.

Push On / Push Off

Select "Push On / Push Off" if you want the Aux Relay you are configuring to act as a standard Push On / Push Off switch.

Momentary

Select "Momentary" if you want the Aux Relay you are configuring to act as a Momentary Switch.

8-Second Timer

Select "8-Second Timer" if you want the Aux Relay you are configuring to automatically turn itself off after 8 seconds.

Security Timer

Select "Security Timer" if you want the Aux Relay you are configuring to require security operation to turn on and automatically turn itself off after 8 seconds.

When operating, the security timer requires two key hits to operate. When the security key is first hit, it will not turn on. It will not turn on until the STBY button is hit immediately following the security key hit. This gives you your two key press security timer.

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3.3.3 SS2000 Program Level 2 Siren Enalble/Disable

Level 2 - Siren Enable/Disable is where you can enable or disable siren tones and radio rebroadcast.

This is also where you choose between the High/Low tone or the Priority tone, or neither.

Save

Saves LEVEL 2 - Siren Enable/Disable settings and returns to LEVEL 2.

Radio, Wail, Yelp, Manual, Air Horn

Click to enable one of the above check boxes. Click off the check box to disable one of the above check boxes.

Hi/Low or Priority

Hi/Low can be configured to activate either the High/Low tone or the Priority tone, or neither.

Turn on Hi/Low option button if you want High/Low to activate.

Turn on Priority option button if you want Priority to activate.

Turn both off if you want neither to be activated by the Hi/Low option button.

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3.3.4 SS2000 Program Level 2 Key 11 and Pursuit

Level 2 - Key 11 and Pursuit is where you configure what key 11 will do and how the pursuit switch functions.

Save

Saves LEVEL 2 - Key 11 & Pursuit Switch settings and returns to LEVEL 2.

Key 11

Key 11 can be configured to operate an external relay (such as a common mic relay) or to operate the horn ring transfer relay.

Choose the External Relay option button to configure "Key 11" as an external relay activator.

Choose the Horn Ring Tranfer option button to configure "Key 11" to control the Horn Ring Transfer.

Pursuit Switch

The pursuit switch can be configured to function two ways. It can toggle between Mode 3 and Mode 0 or it can toggle between Mode 3 and Mode 2.

Choose the Pursuit Switch Mode 3 to 0 option button to make the pursuit switch toggle between Modes 3 and 0.

Choose the Pursuit Switch Mode 3 to 2 option button to make the pursuit switch toggle between

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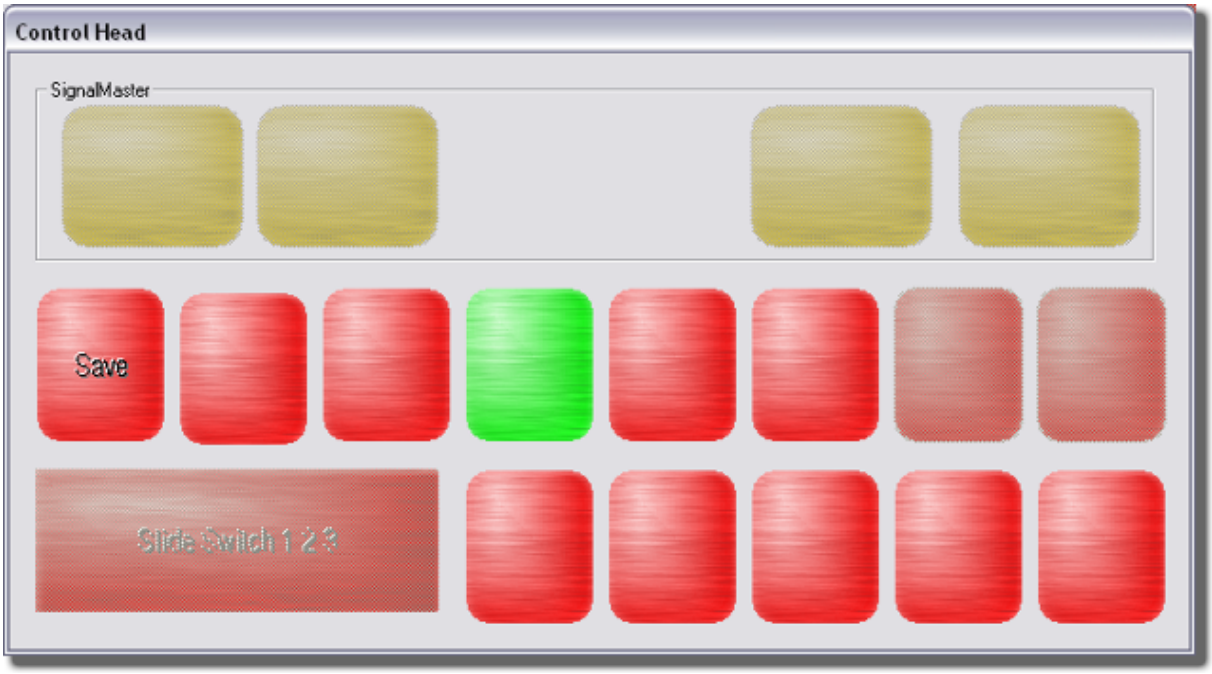
Modes 3 and 2.

Click Park - Siren Deactivator check box if you wish the Siren to deactivate when the vehicle is put in PARK. (This requires the pursuit wire (grey) to be tied to the PARK circuitry in the vehicle. The pursuit input is ground activated and it is the responsibility of the installer to determine an appropriate place to access the PARK circuitry of the vehicle), or if a seperate park sensing unit, such as the UPKM is needed. Refer to you SS2000 instruction manual for more information.

3.4 SS2000 Program Level 3 (Power Up)



Level 3 - Power Up is where you decide what keys should turn on automatically when the system is turned on.

Save

Saves LEVEL 3 - Power Up settings and returns to MAIN MENU.

Press the buttons you want to turn on automatically when the system is powered up.

Remember, only one siren or the Radio button can be selected at a time. If no siren buttons or Radio buttons are selected, the system will power up in stand-by.

Note:
If the sirens are configured to be independent of the slide switch, make sure no sirens are selected on power up.

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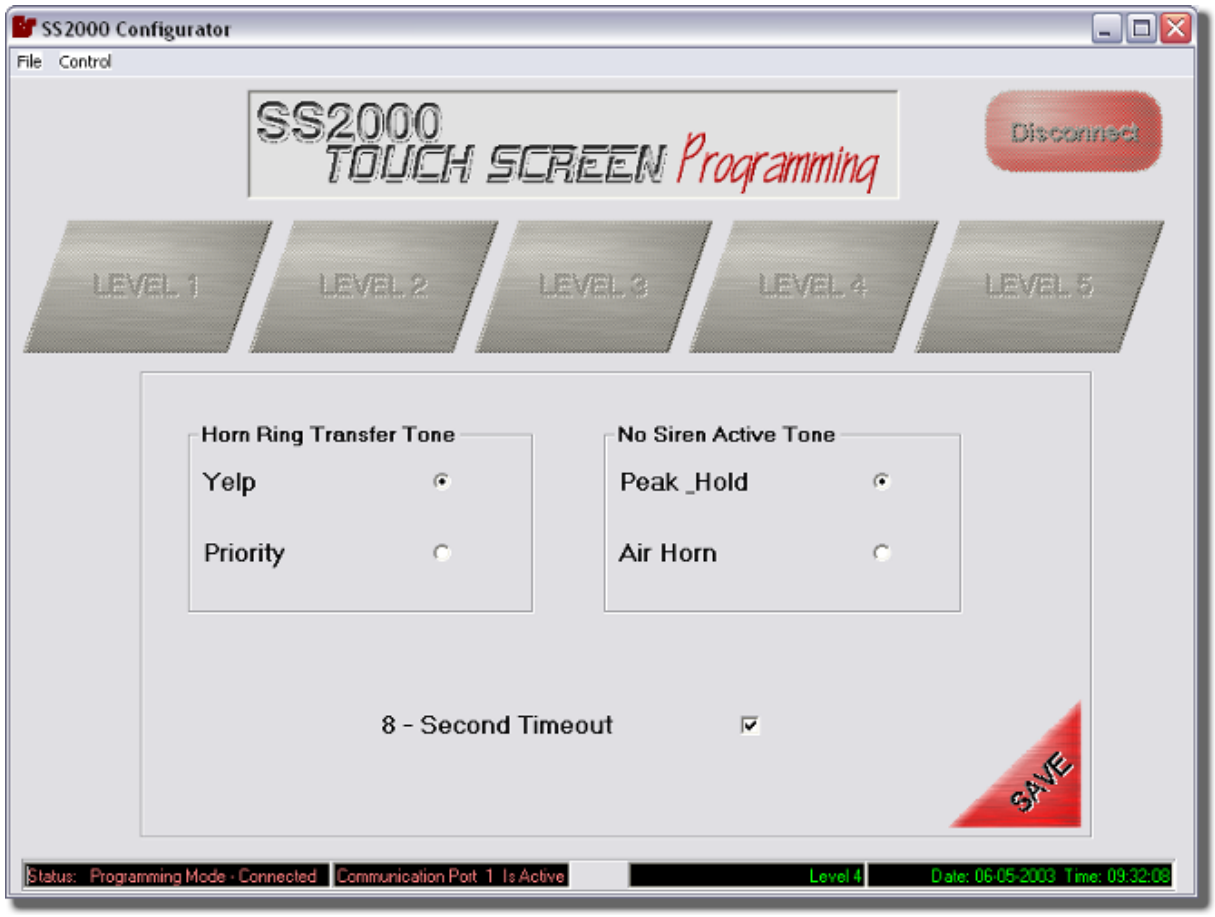
3.5 SS2000 Program Level 4 (Horn Ring)



Level 4 - Horn Ring is where you decide how you want the horn ring to function when it is transferred to the siren.

Save

Saves LEVEL 4 - Horn Ring settings and returns to MAIN MENU.

8-Second Timeout

Click on the 8-Second TImeout check box if you want the Horn Ring Transfer tone to revert back to the original tone after 8 seconds.

Horn Ring Transfer Tone

The Horn Ring transfer tone is the tone that will be produced when you have a less urgent tone (such as wail) already active, and the horn is transferred and you press the horn switch.

If the tone is not programmed transfer to a more urgent tone, the Air Horn will momentarily sound.

Click on the Yelp option button if you want YELP to be this tone. Click on the Priority option button if you want PRIORITY.

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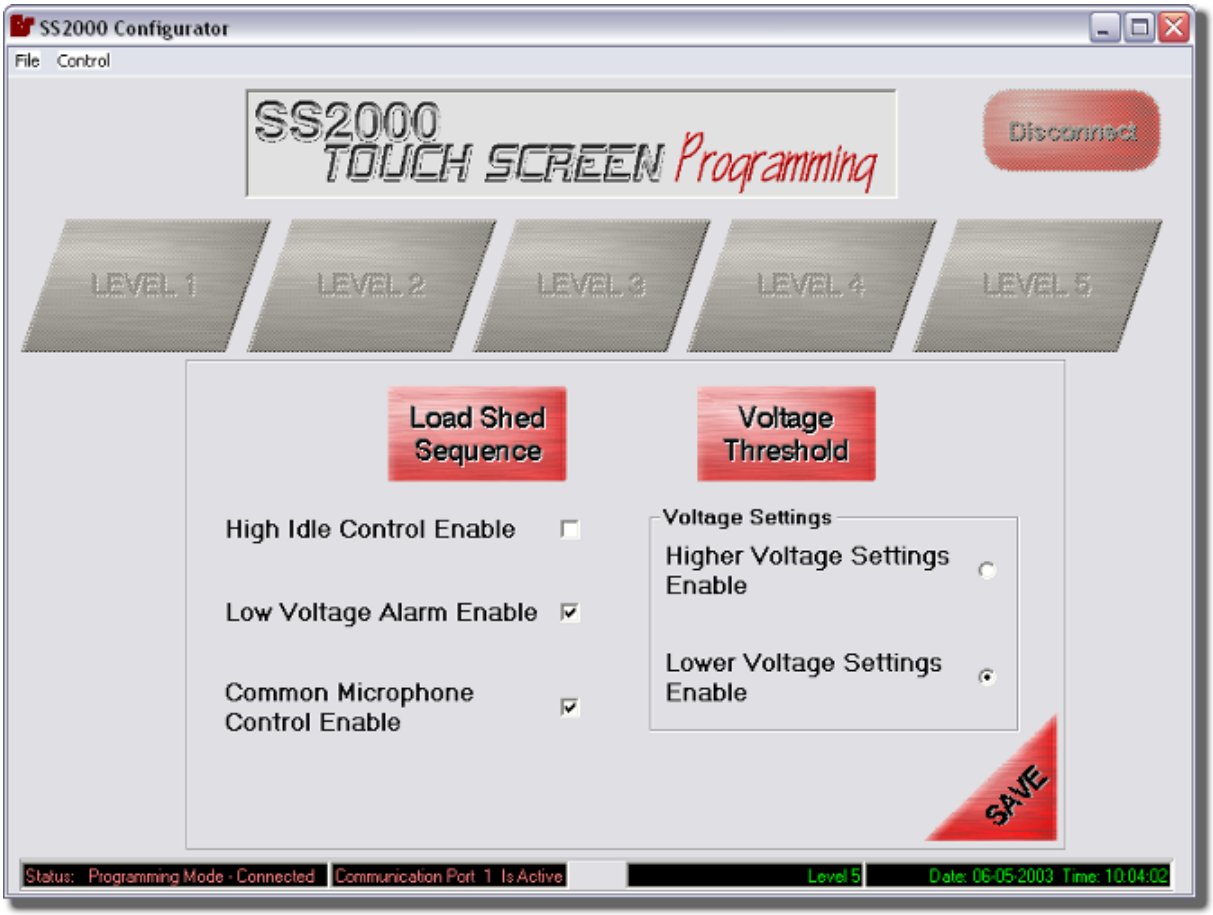
No Siren Active Tone

The no siren active tone is the tone that will be produced when you have no sirens active, and the horn is transferred and you press the horn.

Click on the Peak_Hold option button if you want this tone to be Peak & Hold. Click on Air Horn option button if you want this tone to be Air Horn.

3.6 SS2000 Program Level 5 (LMS Version Only)



Level 5 - Load Management is where you decide which relays should shed (turn off), their shedding sequence, what voltage should start them shedding, enabling of automatic high idle control, and enabling of the low voltage alarm.

Save

Saves LEVEL 5 - Load Management settings and returns to MAIN MENU.

Load Shed Sequence

Press the "Load Shed Sequence" button to reconfigure how the load manager manages the relays. It can also be configured so that relay outputs are not managed. The relays then opreate in a normal on/off control mode.

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To reconfigure the load manager when Load Shed Sequence is selected, go to Level 5 - Load Shed Sequence.

Voltage Threshold

Press the "Voltage Threshold" button to reconfigure the load manager voltage thresholds. Three voltage thresholds are programmable as follows:

High Idle Control Voltage Threshold.
Load Shedding Voltage Threshold.
Low Battery Voltage Alarm Voltage Threshold.

To reconfigure the voltage thresholds when Voltage Threshold is selected, go to Level 5 - Voltage Threshold.

High Idle Control Enable

Press the "High Idle Control Enable" check box to enable/disable the High Idle relay output (+12VDC @ 2A max.). The High Idle output operates in conjunction with the PARK input. If the vehicle is shifted out of PARK, the High Idle relay will NOT turn on. The "High Idle Control Enable" check box is on when High Idle control is enabled and off when High Idle control is disabled. The High Idle control and Common Microphone control are mutually exclusive.

Common Microphone Control Enable

Press the "Common Microphone Control Enable" check box to enable/disable the common microphone relay output (+12VDC @ 2A max.). A common microphone module eliminates the need for two microphones. The "Common Microphone Control Enable" check box is on when Common Microphone control is enabled and off when Common Microphone control is disabled.

The Common Microphone control and High Idle control are mutually exclusive.

Low Voltage Alarm Enable

Press the "Low Voltage Alarm Enable" check box to enable/disable the Low Voltage Alarm. The Low Voltage Alarm turns on if the unit senses that the battery voltage is below the low voltage threshold for 30 seconds or more. The "Low Voltage Alarm Enable" check box is on when the Low Voltage Alarm is enabled and off when the Low Voltage Alarm is disabled.

Higher Voltage Settings Enable

To enable the higher load magager threshold voltage settings (13.8V, 12.8V, and 11.8V), press "Higher Voltage Settings Enalble" option button. This setting in conjunction with High Idle control enable is intended for fire application use.

Lower Voltage Settings Enable

To enable the lower load manager threshold voltage settings (12.8V, 11.8V, and 11.0V), press "Lower Voltage Settings Enalble" option button.

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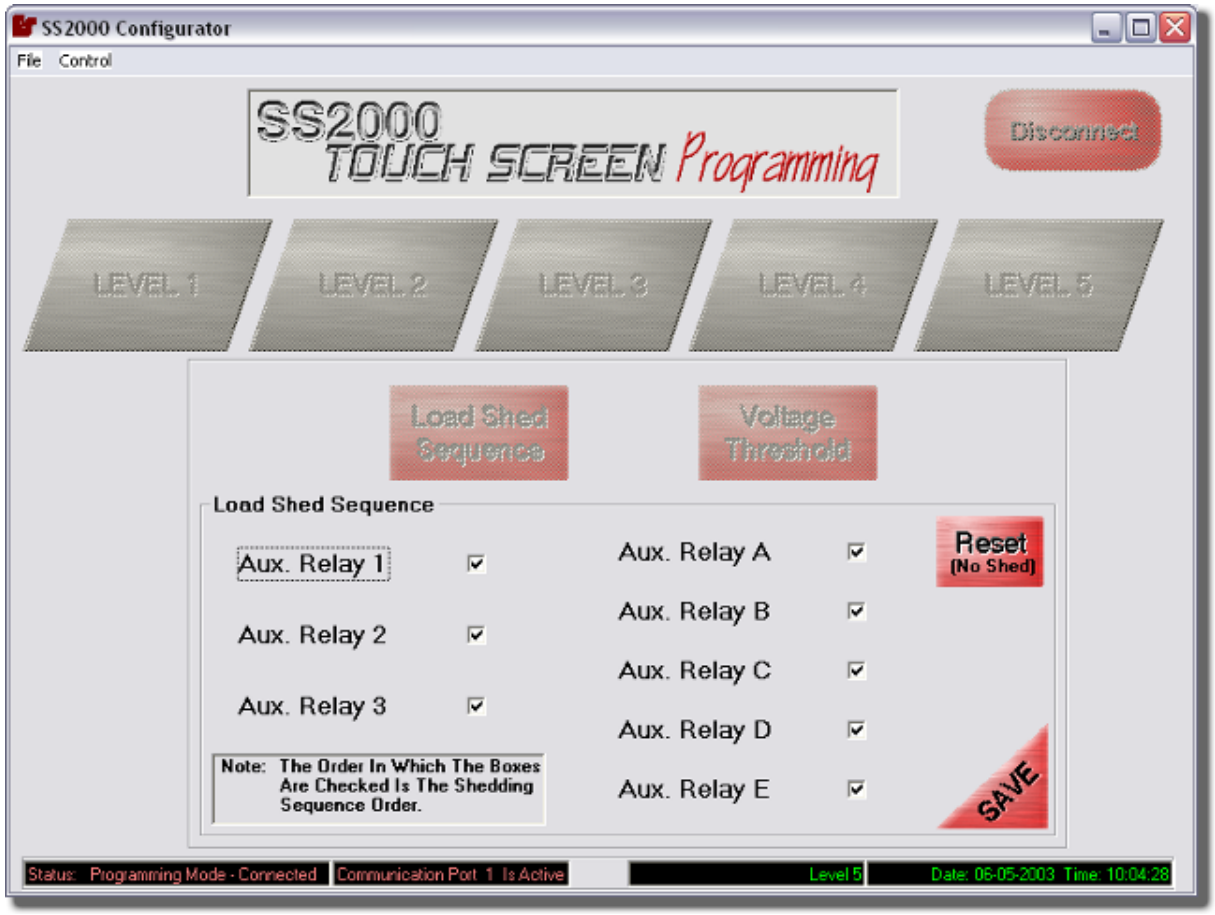
3.6.1 SS2000 Program Level 5 Load Shed Sequence



Level 5 - Load Shed Sequence is where you decide which relays should shed (turn off due to low voltage) and the shedding sequence.

Save

Saves LEVEL 5 - Load Shed Sequence settings and returns to Level 5, Load Management.

Load Shed Sequence

To reconfigure the Load Shed Sequence, press the Aux Relay keys one at a time in the desired shedding sequence order. The order in which the keys are pressed is the shedding sequence. A corresponding number with appear next to the check box that was checked in the order in which it was pressed. Press only the keys which correspond to the relays which need to be managed. The load manager will NOT shed relays which are NOT in the shedding sequence.

Eight relays, Aux Relays 1-3 and Aux Relays A-E, can be programmed as load managed outputs. The load manager will shed the programmed relays in the shedding order when the vehicle is shifted into PARK and the battery voltage drops below the reference voltage (shedding threshold voltage) for 30 seconds or more. If the High Idle Control is enabled, High Idle will activate to remedy the low battery condition before load shedding begins. Previously shed loads are NOT restored if the battery voltage rises above the reference voltage. Previously shed loads are ONLY restored at 0.5 second intervals in reverse sequence when the vehicle is shifted out of PARK.

Previously shed loads can be restored manually by pushing the associated keys.

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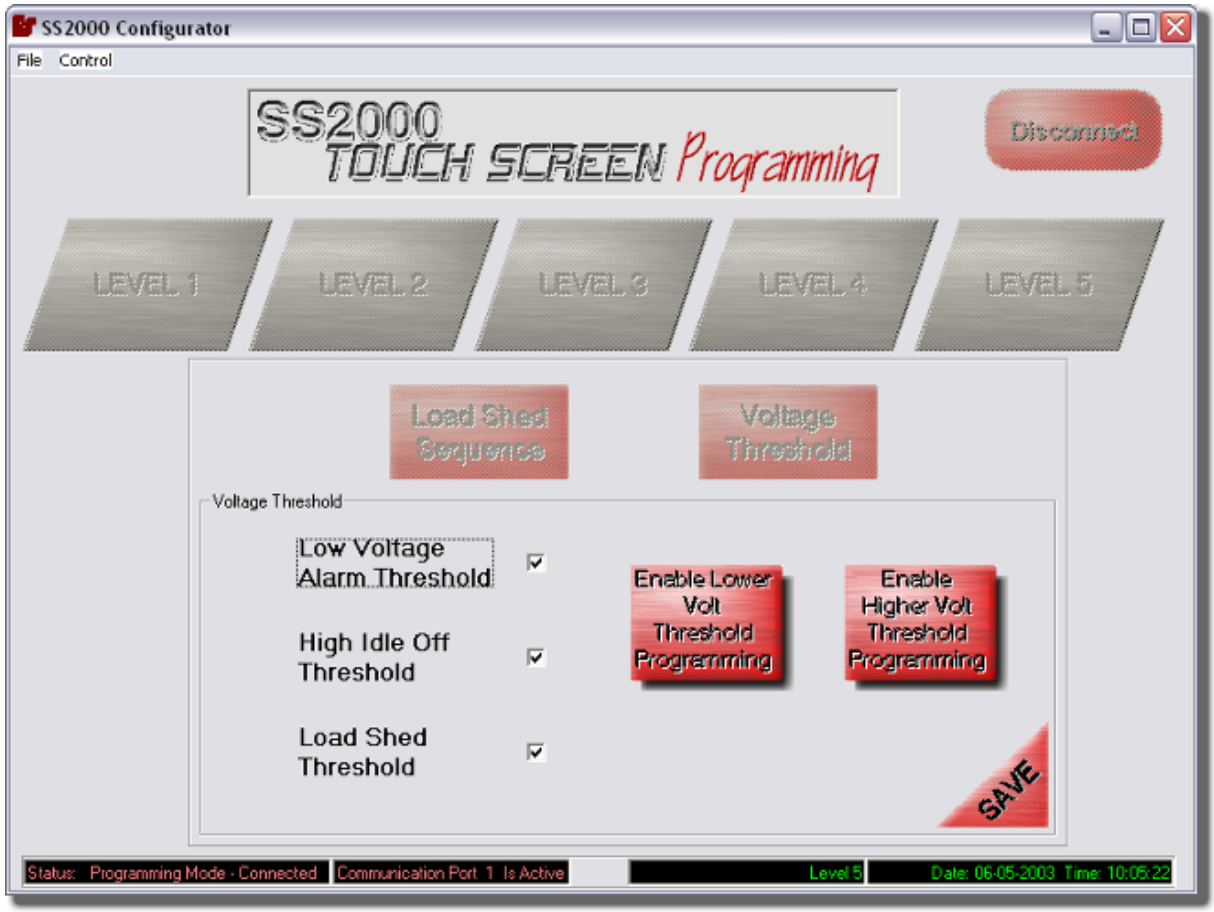
Press the "Reset (No Shed)" button to reset the load manager. After this key is pressed and saved, no load shedding will occur.

IMPORTANT

Determining which loads are managed is a critical decision. It is suggested that only non-critical relays are managed. It is the user's responsibility to determine which loads are managed.

3.6.2 SS2000 Program Level 5 Voltage Threshold



Level 5 - Voltage Threshold is where you configure three voltage thresholds used by the load manager.

Save

Saves LEVEL 5 - Voltage Threshold settings and returns to Level 5, Load Management.

CAUTION

The two sets of default voltage thresholds are set at: 11.8 V, 12.8 V, and 13.8 V; and 11.0V, 11.8V, and 12.8V. DO NOT change the voltages if not necessary. If the thresholds are changed, the initial defaults are lost and the new settings replace the default values.

Note:
The system does NOT reset to the factory voltage threshold defaults even when the "Default Configuration" is selected in Level 1.

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Voltage Thresholds

Higher Voltage

The higher voltage threshold programming can be performed only when the "Enable Higher Voltage Threshold Programming" button is pressed and the button turns on. Press the button to enable higher voltage threshold programming.

To perform the voltage threshold programming, obtain an adjustable DC power supply (2A min.) and a voltmeter. Use the power supply to power the system. Leave all switches off and adjust the DC power supply output to 14 volts. Enter the programming mode, LEVEL 5 - Voltage Threshold. Press the "Enable Higher Voltage Threshold Programming" button to enable voltage threshold programming. Adjust the DC power supply output to the High Idle off voltage (default: 13.8V) and press the "High Idle Off Threshold" button. Adjust the DC power supply output to the Load Shed Threshold voltage (default: 12.8V) and press the "Load Shed Threshold" button. Adjust the DC power supply output to the Low Voltage Alarm Threshold voltage (default: 11.8V) and press the "Low Voltage Alarm Threshold" button.

The adjustable voltage threshold range is 11 - 15 volts.

The flow chart on page 19 illustrates how the load manager works in conjunction with voltage thresholds.

Press the Save button after all voltage thresholds are programmed and return to Level 5 - Load Management.

Lower Voltage

The lower voltage threshold programming can be performed only when "Enable Lower Voltage Threshold Programming" button is pressed and the button turns on. Press the button to enable lower voltage threshold programming.

To perform the voltage threshold programming, obtain an adjustable DC power supply (2A min.) and a voltmeter. Use the power supply to power the system. Leave all switches off and adjust the DC power supply output to 14 volts. Enter the programming mode, LEVEL 5 - Voltage Threshold. Press the "Enable Lower Voltage Threshold Programming" button to enable voltage threshold programming. Adjust the DC power supply output to the High Idle off voltage (default: 12.8V) and press the "High Idle Off Threshold" button. Adjust the DC power supply output to the Load Shed Threshold voltage (default: 11.8V) and press the "Load Shed Threshold" button. Adjust the DC power supply output to the Low Voltage Alarm Threshold voltage (default: 11.0V) and press the "Low Voltage Alarm Threshold" button.

The adjustable voltage threshold range is 11 - 15 volts.

The flow chart on page 19 illustrates how the load manager works in conjunction with voltage thresholds.

Press the Save button after all voltage thresholds are programmed and return to Level 5 - Load Management.

IMPORTANT

Voltage thresholds dramatically affect the performance of the load manager. Changing voltage thresholds from default settings is the user's responsibility.

Voltage measurement during programming voltage thresholds is critical. Voltage MUST be measured at pin 6 (red wire) and pin 4 (black wire) of the unit's power cable (see figure 3-6 in the supplied Hardware Installation and Maintenance Instructions). Improper load manager operation will result if voltage measurements, or settings, are incorrect.

It is strongly recommended that only trained, or experienced technicians, perform the voltage

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threshold settings.

4 Testing After Installation

Before testing, read and understand the supplied Operation and Configuration Instructions. After installation is complete, test all siren and light functions to ensure that all functions and controlled devices operate as intended. Test all vehicle safety features and functions, including horn operation and vehicle light systems, to ensure proper operation.

Programming is described in the Operation and Configuration Instructions supplied with the SS2000 Siren.

After testing is complete, provide a copy of the manual to all operating personnel.

Sound Hazards

- Your hearing and the hearing of others, in or close to your emergency vehicle, could be damaged by loud sounds. This can occur from short exposures to very loud sounds, or from longer exposures to moderately loud sounds. For hearing conservation guidance, refer to federal, state, or local recommendations. OSHA Standard 1910.95 offers guidance on "Permissible Noise Exposure".

- All effective sirens and horns produce loud sounds (120 dB) that may cause permanent hearing loss. Always minimize your exposure to siren sound, roll up your windows and wear hearing protection. Do not sound the siren indoors or in enclosed areas where you and others will be exposed to the sound. Only use the siren for emergency response situations.

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5 Safety Messages

5.1 SAFETY MESSAGE TO OPERATORS OF SIRENS AND LIGHT/SOUND

WARNING

The lives of people depend on your safe operation of Federal products. It is important to read and follow all instructions shipped with the products. In addition, listed below are some other important safety instructions and precautions you should follow:

Qualifications

- To properly use an emergency warning system, you must have a good understanding of general vehicle operation, a high proficiency in the use of safety warning equipment, and thorough knowledge of state and federal UNIFORM TRAFFIC CODES.

Sound Hazards

- Your hearing and the hearing of others, in or close to your emergency vehicle, could be damaged by loud sounds. This can occur from short exposures to very loud sounds, or from longer exposures to moderately loud sounds. For hearing conservation guidance, refer to federal, state, or local recommendations. OSHA Standard 1910.95 offers guidance on "Permissible Noise Exposure".

- All effective sirens and horns produce loud sounds (120 dB) that may cause permanent hearing loss. Always minimize your exposure to siren sound, roll up your windows and wear hearing protection. Do not sound the siren indoors or in enclosed areas where you and others will be exposed to the sound. Only use the siren for emergency response situations.

Sound Limitations

- Before using the vehicle, check to see if the siren speakers are concealed from view. If the siren speaker is not in clear view on the front of the vehicle, use extra caution when operating the vehicle. A concealed siren speaker installation is less effective at warning others.

- Maximum sound output will be severely reduced if any objects are in front of the speaker. If your installation has obstructions in front of the speaker, drive even more cautiously.

- Frequently inspect the speaker to ensure that it is clear of any obstruction, such as mud or snow, which will reduce maximum sound output.

Signaling Limitations

- Be aware that the use of your visual and audible signaling devices does not give you the right to force your way through traffic. Your emergency lights, siren, and actions are REQUESTING the right-of-way.

- Although your warning system is operating properly, it may not alert everyone. People may not hear, see, or heed your warning signal. You must recognize this fact and continue driving cautiously.

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- Situations may occur which obstruct your warning signal when natural or man-made objects are between your vehicle and others. This can also occur when you raise your hood or trunk lid. If these situations occur, be especially careful.

Driving Limitations

- At the start of your shift, you should ensure that the lighting and sound system is securely attached to the vehicle and operating properly.

- If the unique combination of emergency vehicle equipment installed in your vehicle has resulted in the warning system controls being installed in a position that does not allow you to operate them by touch only, OPERATE CONTROLS ONLY WHILE YOUR VEHICLE IS STOPPED.

- If driving conditions require your full attention, you should avoid operating the warning system controls while the vehicle is in motion.

Continuing Education

- File these instructions in a safe place and refer to them periodically. Give a copy of these instructions to new recruits and trainees.

Failure to follow these safety precautions may result in property damage, serious injury, or death to you, to passengers, or to others.

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5.2 SAFETY MESSAGE TO PERSONNEL SERVICING ELECTRONIC SIRENS

⚠ WARNING

The lives of people depend on your proper servicing of Federal products. It is important to read and follow all instructions shipped with the products. In addition, listed below are some other safety instructions and precautions you should follow:

- Read and understand all instructions in this manual before servicing any of the warning system components.
- To properly service an electronic warning system, you must have a good understanding of automotive electrical procedures and systems, along with proficiency in the installation and service of safety warning equipment. Always refer to the vehicle's service manuals when performing service on a vehicle.
- Electronic circuit and speaker repairs must be performed by a qualified and competent electronic technician.
- Your hearing and the hearing of others, in or close to your emergency vehicle, could be damaged by loud sounds. This can occur from short exposures to very loud sounds, or from longer exposures to moderately loud sounds. For hearing conservation guidance, refer to federal, state, or local recommendations. OSHA Standard 1910.95 offers guidance on "Permissible Noise Exposure".
- All effective sirens and horns produce loud sounds (120 dB) that may cause permanent hearing loss. Always minimize your exposure to siren sound and wear hearing protection. Do not sound the siren indoors or in enclosed areas where you and others will be exposed to the sound.
- DO NOT connect this system to the positive terminal of the battery until servicing is complete, and you have verified that there are no short circuits to ground.
- In order for the electronic siren to function properly, the ground connection must be made to the NEGATIVE battery terminal.
- After repair, test all of the warning system functions to ensure that the system is operating properly.
- Federal Signal siren amplifiers and speakers are designed to work together as a system. Combining a siren and speaker from different manufacturers may reduce the warning effectiveness of the siren system and may damage the components. You should verify or test your combination to make sure the system works together properly and meets both federal, state and local standards or guidelines.
- The lighting products you are servicing may contain high intensity LED devices. To prevent eye damage, DO NOT stare into the light beam at close range.
- Glass light bulb and strobe tubes are fragile and can fail. You should frequently inspect the light system to ensure that it is operating properly.
- Over time, roof mounted lighting systems can loosen. Frequently inspect the lighting system to

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be sure it is securely fastened to the vehicle.

- Halogen lamps and strobe tubes can burst. Always wear hand and eye protection when working with halogen lamps or strobe tubes
- Strobe light systems use high voltage. Always disconnect power from any strobe lighting device and wait at least 5 minutes before servicing the unit.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you or others.

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